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BT-2/M-17 8210

MANUFACTURING PROCESSES

ME-103-E

Time : Three Hours] [Maximum Marks : 100

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) What are the objectives of Factories Act, 1948 ? Explain in detail, the features of Factories Act, 1948. regarding safety. 12

   (b) Explain different thermal properties of materials in detail. 8

2. (a) What is an accident ? Explain different causes and effects of accident. 10

   (b) Write short notes on the following : 10

   (i) Simplification
   (ii) Standardization
   (iii) Inspection and quality control
   (iv) Automation
   (v) Interchangeability.

Unit II

3. (a) Explain the shell moulding process with the help of a neat sketch. State its practical applications and special benefits. 6

   (b) Discuss the design considerations for : Sprue, riser and ingate. 6

   (c) What is a Core ? How many types of core are there ? Explain them with the help of neat sketches, illustrating their special applications. 8

4. (a) Explain true centrifugal casting with a neat sketch stating its applications. Is it possible to obtain a scund casting of a solid bar by this process ? Justify your answer. 6

   (b) Describe various types of pattern allowances while giving the need for each allowance and value of each allowance with the help of suitable diagrams. 10

   (c) Mention various casting defects. 4

Unit III

5. (a) What are the main objectives of a plant layout ? Explain with the help of neat sketches different types of plant layouts mentioning their advantages and limitations. 12

(b) Describe the process of wire drawing with the help of diagram. Also state the most common lubricant used in wire drawing operation. 8

6. (a) Compare and contrast the forward extrusion and backward extrusion process giving a neat sketch. Compare their merits and demerits. 6

(b) Explain the following cold working operation with neat sketches : 10

(i) Rolling

(ii) Stretch forming

(iii) Hobbing

(iv) Bending.

(c) What is impact extrusion ? Explain this process and state its specific applications. 4

Unit IV

7. (a) How is an electrode specified ? What factors govern the selection of an electrode ? 6

(b) Describe Tungsten Inert Gas (TIG) welding process with the help of a neat sketch. Also state its applications. merits and demerits. 8

(c) Why are Chip Breakers necessary ? If the Chips are not broken down and removed, what adverse effects can they produce on the work, tool and surroundings ? 6

8. (a) What are the possible reasons of Tool failure ? Explain in detail with the help of suitable examples the common mechanisms of tool wear. 10

(b) What is meant by HAZ ? Explain the various regions of HAZ with a suitable diagram. 5

(c) Compare the coordinate system (ASA) and with Orthogonal (ORS) system of tool nomenclature. 5